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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/791,280      | 03/03/2004  | Xiaoming Tao         | P69560US0           | 8929             |

136 7590 10/24/2006

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| EXAMINER |
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SIMONE, CATHERINE A

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| ART UNIT | PAPER NUMBER |
|----------|--------------|

1772

DATE MAILED: 10/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/791,280

Applicant(s)

TAO ET AL.

Examiner

Catherine Simone

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                            |                                                                                         |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                           | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## **DETAILED ACTION**

### ***Withdrawn Objections***

1. The objection to the drawings of record in the last Office Action mailed 3/17/06, Page 2, Paragraph #2 has been withdrawn due to the Applicants' amendment filed 8/17/06.

### ***Withdrawn Rejections***

2. The 35 U.S.C. 102 rejection of claims 1, 2, 5 and 6 as anticipated by Kim et al. of record in the last Office Action mailed 3/17/06, Pages 3-4, Paragraph #4 has been withdrawn due to the Applicants' amendment filed 8/17/06.
3. The 35 U.S.C. 103 rejection of claims 3 and 4 over Kim et al. in view of Brock et al. of record in the last Office Action mailed 3/17/06, Pages 4-5, Paragraph #6 has been withdrawn due to the Applicants' amendment filed 8/17/06.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 2, 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ashtiani-Zarandi et al. (US 4,890,877) in view of Kim et al. (US 5,972,477).

Ashtiani-Zarandi et al. disclose a three-dimensional textile composite structure with energy-absorbing capacities under multiple impacts comprising a base (*Fig. 3, #36*) and at least one progressively collapsible projection (*Fig. 3, #34*) extending from the base for absorbing energies under the multiple impacts, wherein the projection includes a textile material supported in a thermoplastic matrix material (*see col. 4, lines 19-31*), and wherein the projection includes rings which are progressively formed along its sidewall under the multiple impacts (*Fig. 5, #34*) such that the projection is capable of retaining energy-absorption capacity at least after the first impact of the multiple impacts (*see col. 3, lines 30-38*).

However, Ashtiani-Zarandi et al. fail to disclose the textile material being a non-woven material.

Kim et al. teaches a three-dimensional textile composite structure being made of a non-woven textile material (*see col. 6, lines 45-50*) for the purpose of providing a structure that is highly resilient and has excellent cushioning properties and can be used as an impact absorber (*see col. 2, lines 3-5 and col. 3, lines 48-51*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to have modified the textile material in Ashtiani-Zarandi et al. to be made of a non-woven material as suggested by Kim et al. in order to provide a structure that is highly resilient and has excellent cushioning properties and can be used as an impact absorber.

Regarding claim 2, the projections in Ashtiani-Zarandi et al. have a conical sidewall and a generally flat top (*see col. 3, lines 5-7*).

Regarding claim 5, the thermoplastic matrix material in Ashtiani-Zarandi et al. inherently has a melting temperature lower than the textile material, since the fibers of the textile material

and the thermoplastic material (*see col. 3, line 1 and col. 4, lines 30-31*) in Ashtiani-Zarandi et al. are similar to those disclosed in Applicant's present application.

Regarding claim 6, the limitation "the non-woven textile material is impregnated with the thermoplastic matrix material by the following steps: laminating a layer of the thermoplastic matrix material with a layer of the non-woven textile material, heating the laminate to a processing temperature higher than the melting temperature of the thermoplastic matrix material but lower than the melting temperature of the non-woven textile material and applying pressure to the heated laminate for impregnating the non-woven textile material with the melted thermoplastic matrix material" in claim 6 is a method of production and therefore does not determine the patentability of the product itself. The method of forming the product is not germane to the issue of patentability of the product itself. MPEP 2113.

6. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claim 1 above, and further in view of Brock et al. (US 3,788,936).

Ashtiani-Zarandi et al. and Kim et al. teach the three-dimensional textile composite structure with energy-absorbing capacities under multiple impacts as detailed above. However, Ashtiani-Zarandi et al. fail to teach the textile material being a non-woven material made from staple fibers with a random orientation wherein the staple fibers have a low level of anisotropy in mechanical properties.

Brock et al. teaches a non-woven textile material being made from staple fibers with a random orientation wherein the staple fibers have a low level of anisotropy in mechanical properties (*see col. 1, line 70 and col. 4, lines 69-70*) for the purpose of providing desirable energy absorbing characteristics (*see col. 1, lines 22-24*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to have modified the textile material of the three-dimensional textile composite structure in Ashtiani-Zarandi et al. to be of a non-woven material made from staple fibers with a random orientation wherein the staple fibers have a low level of anisotropy in mechanical properties as suggested by Brock et al. in order to provide desirable energy absorbing characteristics (*see col. 1, lines 22-24*).

#### ***Response to Arguments***

7. Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

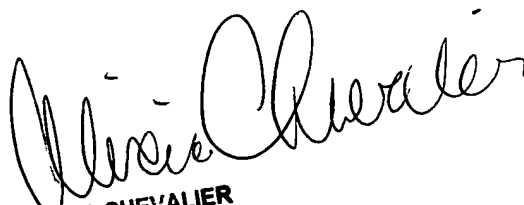
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Catherine Simone whose telephone number is (571)272-1501. The examiner can normally be reached on 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on (571) 272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Catherine A. Simone  
Examiner  
Art Unit 1772  
October 17, 2006



**ALICIA CHEVALIER**  
**PRIMARY EXAMINER**